

WHAT IS CLAIMED IS:

1. A semiconductor device comprising a plurality of TFTs, each of TFTs comprising:

a semiconductor layer formed on an insulating surface;

5 an insulating film formed on the semiconductor layer; and

a gate electrode formed on the insulating film,

wherein the semiconductor device comprising:

a pixel portion comprising a first n-channel TFT having a source wiring made of the same material as the gate electrode;

10 a driver circuit including a circuit comprising a second n-channel TFT and a third n-channel TFT; and

a terminal portion made of the same material as the gate electrode.

2. A device according to claim 1, wherein the gate electrode has a laminate  
15 structure of a material film containing mainly TaN, a material film containing mainly Al, and a material film containing mainly Ti.

3. A device according to claim 1, wherein the gate electrode has a laminate  
structure of a material film containing mainly W, a material film containing mainly  
20 Al, and a material film containing mainly Ti.

4. A device according to claim 1, wherein the second n-channel TFT and the third n-channel TFT compose one of an EEMOS circuit and an EDMOS circuit.

25 5. A device according to claim 1, wherein the semiconductor device is a liquid

crystal module of one of a transmission type and a reflection type.

6. A device according to claim 1, wherein the semiconductor device is a light emitting device having an OLED.

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7. A device according to claim 1, wherein the semiconductor device is one selected from the group consisting of a video camera, a digital camera, a car navigation system, a personal computer, a portable information terminal, and an electronic game device.

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8. A semiconductor device comprising a plurality of TFTs, each of TFTs comprising:

a semiconductor layer formed on an insulating surface;

an insulating film formed on the semiconductor layer; and

15 a gate electrode formed on the insulating film, the gate electrode having a three-layer laminate structure,

wherein said plurality of TFTs have the same conductivity type.

9. A device according to claim 8, wherein the gate electrode comprises a  
20 material film containing mainly TaN, a material film containing mainly Al, and a material film containing mainly Ti.

10. A device according to claim 8, wherein the gate electrode comprises a  
material film containing mainly W, a material film containing mainly Al, and a  
25 material film containing mainly Ti.

11. A device according to claim 8, wherein said plurality of TFTs are n-channel TFTs.

12. A device according to claim 8, wherein said plurality of TFTs are p-channel  
5 TFTs.

13. A device according to claim 8, wherein TFTs formed in a driving circuit of the semiconductor device compose one of an EEMOS circuit and an EDMOS circuit.  
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14. A device according to claim 8, wherein the semiconductor device is a liquid crystal module of one of a transmission type and a reflection type.

15. A device according to claim 8, wherein the semiconductor device is a light  
15 emitting device having an OLED.

16. A device according to claim 8, wherein the semiconductor device is one selected from the group consisting of a video camera, a digital camera, a car navigation system, a personal computer, a portable information terminal, and an  
20 electronic game device.

17. A method of manufacturing a semiconductor device comprising the steps of:  
forming a semiconductor layer on an insulating surface;  
forming a first insulating film on the semiconductor layer;  
25 forming a gate electrode, a source wiring of a pixel portion, and an

electrode of a terminal portion on the first insulating film;

adding an impurity element for providing an n-type to the semiconductor layer using the gate electrode as a mask to form an n-type impurity region;

etching the gate electrode to form a taper portion;

5 forming a second insulating film which covers the source wiring of the pixel portion and the terminal portion; and

forming a gate wiring and a source wiring of the driver circuit on the second insulating film.

10 18. A method according to claim 17, wherein in the step of forming the gate electrode, the source wiring of the pixel portion, and the electrode of the terminal portion, a material film containing mainly TaN, a material film containing mainly Al, and a material film containing mainly Ti are formed to be laminated, and then etched using a mask to form the gate electrode, the source wiring of the pixel portion, and  
15 the electrode of the terminal portion.

19. A method according to claim 17, wherein in the step of forming the gate electrode, the source wiring of the pixel portion, and the electrode of the terminal portion, a material film containing mainly W, a material film containing mainly Al,  
20 and a material film containing mainly Ti are formed to be laminated, and then etched using a mask to form the gate electrode, the source wiring of the pixel portion, and the electrode of the terminal portion.

20. A method according to claim 17, wherein the semiconductor device is a light  
25 emitting device having an OLED.

21. A method according to claim 17, wherein the semiconductor device is one selected from the group consisting of a video camera, a digital camera, a car navigation system, a personal computer, a portable information terminal, and an electronic game device.